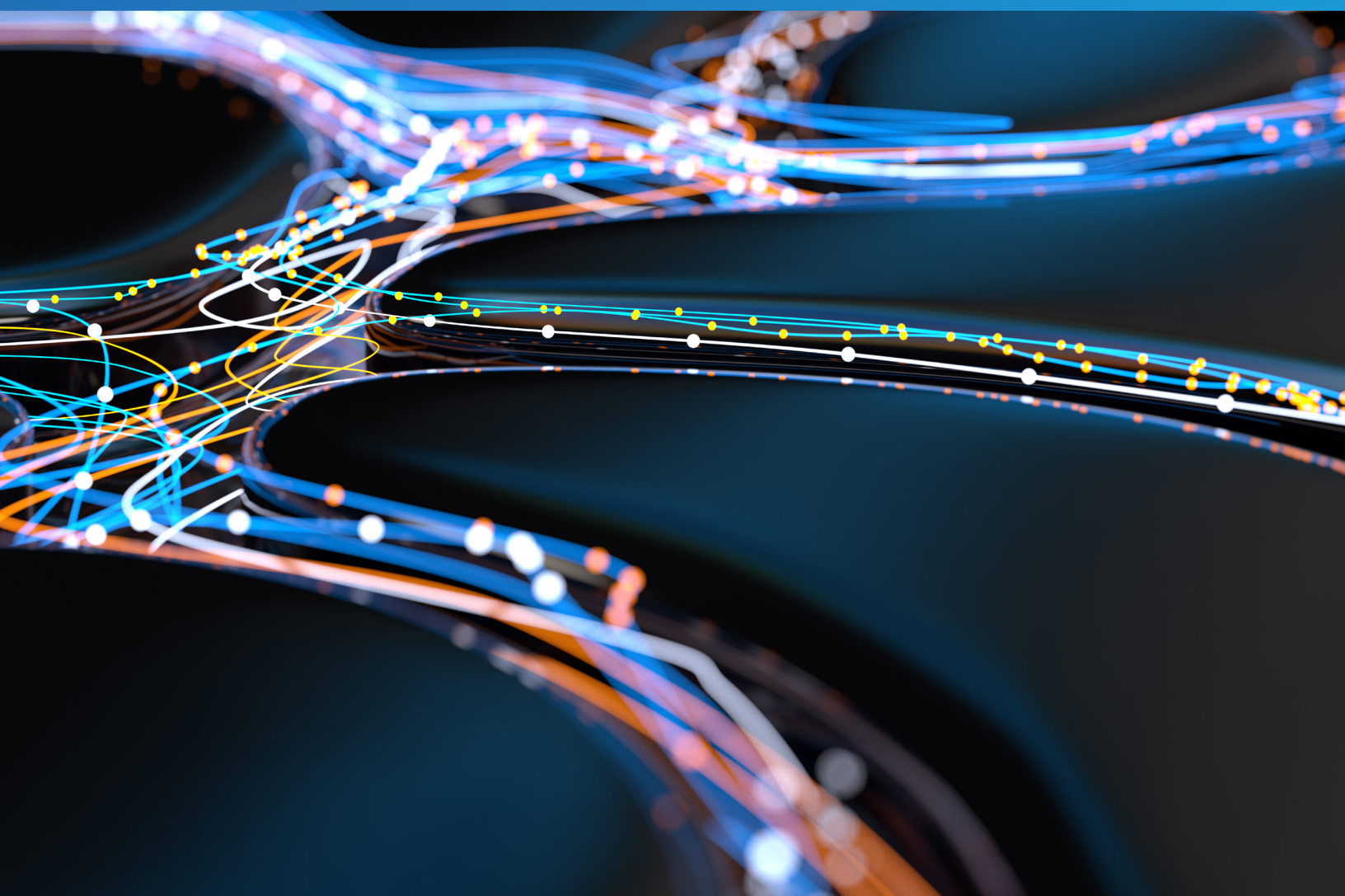




# Analytical Procedures in a Review Engagement



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W. Barclay Bradshaw

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## Note to readers

### *Authority of This Practice Aid*

This practice aid is an *other preparation, compilation, and review publication* as defined in paragraph .07 of AR-C section 60, *General Principles for Engagements Performed in Accordance With Statements on Standards for Accounting and Review Services*. As such, this practice aid has no authoritative status; however, *such other preparation, compilation, and review publications* might help the accountant understand and apply the Statements on Standards for Accounting and Review Services (SSARs). Pursuant to paragraph .19 of AR-C section 60, in applying the guidance included herein, the accountant should, exercising professional judgment, assess the relevance and appropriateness of such guidance to the circumstances of the engagement. Because this practice aid is published by the AICPA and has been reviewed by AICPA Audit and Attest Standards staff, an accountant may presume that it is appropriate.

### *Purpose*

This practice aid illustrates and demonstrates the importance of forming expectations and considering the precision of the expectation, two of the most misunderstood concepts when applying analytical procedures in a review engagement. These concepts are particularly important because the results of the accountant's analytical procedures substantially contribute to the information the accountant uses to provide a reasonable basis for obtaining limited assurance. Understanding the precision of the expectation is vital because limited assurance — while less than the reasonable assurance obtained in an audit — is a meaningful level of assurance that is significantly more than minimal.

## Analytical procedures as review evidence to support the accountant's conclusion on the financial statements

In conducting a review of financial statements, as stated in paragraph .04 of AR-C section 90, *Review of Financial Statements*,<sup>1</sup> the accountant's objectives are (a) to obtain limited assurance, primarily by performing analytical procedures and inquiries, as a basis for reporting whether the accountant is aware of any material modifications that should be made to the financial statements for them to be in accordance with the applicable financial reporting framework, and (b) to report on the financial statements as a whole and communicate, as required by AR-C section 90. An accountant cannot perform a review of financial statements without performing analytical procedures.

In accordance with paragraph .24 of AR-C section 90, based on the accountant's understanding of the industry, knowledge of the entity, and awareness of the risks that the accountant may unknowingly issue an inappropriate accountant's review report, the accountant should design and perform analytical procedures, make inquiries, and perform other procedures,<sup>2</sup> as appropriate, to obtain sufficient appropriate review evidence as a basis for reporting whether the accountant is aware of any material modifications that should be made to the financial statements in order for the statements to be in accordance with the applicable financial reporting framework. In obtaining sufficient appropriate review evidence as the basis for a conclusion on the financial statements as a whole, the accountant should, in accordance with paragraph .25 of AR-C section 90, design and perform the analytical procedures and inquiries to address (a) all material items in the financial statements, including disclosures and (b) areas in the financial statements where the accountant believes there are increased risks of material misstatements.

### Concepts

Paragraph .08 of AR-C section 90 defines *analytical procedures* as "evaluations of financial information through analysis of plausible relationships among both financial and nonfinancial data. Analytical procedures also encompass such investigation, as is necessary, of identified fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount." This definition implies several key concepts, as follows:

- "Evaluations of financial information" suggests that analytical procedures will be used to understand or test financial statement relationships or balances.
- "Investigation ... of identified fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount" implies an understanding of what can reasonably be expected and involves a comparison of recorded book values with an accountant's expectations and an understanding of those differences.
- "Relationships among both financial and nonfinancial data" suggests that both types of data can be useful in understanding the relationships of the financial information and, therefore, in forming an expectation.

Analytical procedures are most effective when the accountant develops expectations that can reasonably be expected to identify unexpected relationships.

<sup>1</sup> All AR-C sections can be found in AICPA *Professional Standards*.

<sup>2</sup> *Other procedures* related to analytical procedures are discussed further on page 10 of this practice aid.

## Expectations

Expectations are the accountant's predictions of recorded accounts or ratios. In performing analytical procedures, the accountant develops the expectation that any significant difference between the expected amount and the recorded amount indicates a possible misstatement. When such a difference is identified, the accountant seeks to obtain explanations for it (for example, an unusual event occurred) that are reasonable and consistent in light of the results of other review procedures (such as the accountant's inquiry procedures and other procedures performed to obtain limited assurance) and the accountant's knowledge of the entity's business.

An accountant develops expectations by identifying plausible relationships (such as a store's square footage and its retail sales) that, based on the accountant's understanding of the entity and of the industry in which it operates, the accountant can reasonably expect to exist. The accountant may select information from various sources to form expectations. For example, the accountant may use prior-period information adjusted for expected changes,<sup>3</sup> management's budgets or forecasts, industry data, or nonfinancial data. The source of information partly determines how precise the accountant's prediction of an account balance is; therefore, to obtain the limited assurance from an analytical procedure, it is important to consider the information's source when developing an expectation.

## Precision

The effectiveness of analytical procedures depends on their precision. Precision is a measure of how close the accountant's expectation is to the correct amount. In performing analytical procedures in connection with a financial statement review, the level of precision of the expectations the accountant develops might directly affect the level of assurance the accountant obtains. Therefore, the precision of expectations is a way the accountant can address areas believed to have increased risks of material misstatement. Factors that affect the precision of analytical procedures include the following:

- The type of expectation developed
- The reliability and other characteristics of the data used in forming the expectation (both internally and externally prepared data)
- The consistency of characteristics of the data
- The nature of the account

Suppose, for example, an accountant plans to obtain limited assurance with respect to interest income. The accountant can obtain more assurance by developing a relatively precise expectation by selecting the appropriate type of procedure (such as a reasonableness test instead of a simple trend analysis), the level of detail of the data (such as quarterly versus annual data), and the reliability of the source of the data. The precision of the expectation primarily determines the degree of assurance obtained from the analytical procedure and affects the accountant's ability to ascertain whether an unexpected difference in an account balance results from misstatement.

<sup>3</sup> See "Accountant's Understanding of the Entity and the Industry in Which the Entity Operates" on page 4 for an example regarding the importance of adjusting the accountant's expectation for changes in the entity's business.

## The analytical procedure process (four phases)

Consider the use of analytical procedures to be a process comprising four phases. The first of these relates to the formation of expectations: The accountant forms an expectation of an account balance or a financial relationship; this determines both the precision of the expectation and thus (in part) the effectiveness of the analytical procedure.

The remaining three phases relate to identification, inquiry, and evaluation, respectively. In the second phase, the accountant identifies any unusual fluctuations between the expected and recorded amounts. In the third, the accountant inquires of management, seeking plausible explanations for any unexpected differences. Finally, in the fourth phase, the accountant evaluates the likelihood of material misstatement and determines the nature and extent of any additional review procedures considered necessary.

### Phase 1: Expectation formation

Forming an expectation is the first — and the most important — phase of the analytical procedure process. The more precise the expectation (that is, the closer the accountant's expectation is to the correct balance or relationship), the more effective the procedure will identify potential misstatements. In a review engagement, the expectation needs to be precise enough to provide limited assurance that potential misstatements (individually or when aggregated with other misstatements) would be identified for the accountant to then inquire of management regarding their cause. Although limited assurance is less than the reasonable (that is, high) level of assurance obtained in an audit engagement, it is a sufficiently meaningful level of assurance to provide a basis for the accountant's conclusion in the review report that users can rely on in making determinations regarding the financial statements.

#### ***Accountant's understanding of the entity and the industry in which the entity operates***

The accountant develops expectations by identifying and using relationships that, based on the accountant's understanding of the entity and the industry in which it operates, are reasonably expected to exist.

Typically, the accountant would inquire of members of management whether there have been any changes in the entity's business or in the accounting principles and practices used by the entity. These inquiries help the accountant develop expectations. Understanding the entity's industry — including the industry's economic trends and indicators — further helps develop expectations.

For example, paragraph .26a of AR-C section 90 requires the accountant to compare the financial statements with comparable information for the prior period, considering knowledge about changes in the entity's business and specific transactions. Assume that the entity is a restaurant and that the financial statements cover the period during the economic shutdown due to the COVID-19 pandemic. It is likely that the restaurant received government grants and converted its operations from dine-in to take-out. Its economic model changed significantly; likewise, the accountant's expectations would change from those held had the pandemic-related shutdown not occurred. It would significantly diminish the effectiveness of the analytical procedure if the accountant simply compared current-period financial statements with those of the prior period and attributed any fluctuations to the shutdown. Instead, the accountant should compare current-period amounts to expectations developed to reflect the changed economic environment. In this way, the analytical procedure might identify a potential misstatement due to improperly recorded government grants or to overstated revenue from dine-in operations.

The effectiveness of an analytical procedure is a function of three factors related to the precision with which the expectation is developed; these three factors follow:

- The nature of the account or assertion
- The reliability, consistency, and other characteristics of the data
- The inherent precision of the expectation method used

The following sections discuss each of these factors in detail.

### ***Nature of the account or assertion***

Analytical procedures are based on relationships among data. For example, how does this year compare with last year? How do amounts on the balance sheet relate to the corresponding income and expense items? The more predictable such relationships are, the more precise expectations will be. Matters an accountant might consider in predicting the amount of an account follow:

- The subjective or objective nature of the items in an account balance (for example, whether the account comprises estimates or an accumulation of transactions)
- Consistency of items, amounts, or transactions in an account balance
- Mix of products or services
- Company profile (for example, the number of stores or locations)
- Management's discretion (for example, estimates)
- Stability of the economic environment
- Income statement or balance sheet account

Many factors affect an account balance; increasing the number of such factors that the accountant considers in forming an expectation of the account balance increases in turn the precision of the expectation. Such factors include the following:

- Significant events
- Accounting changes
- Business and industry factors
- Market and economic factors
- Management incentives
- Initial versus repeat engagement

Moreover, expectations developed for income statement accounts tend to be more precise than expectations for balance sheet accounts because income statement relationships generally are more predictable. In addition, expectations formed under stable economic conditions (such as stable interest rates) or in a stable regulatory environment (such as few to no rule changes) tend to be more precise than expectations formed during general instability.

## ***Reliability, consistency, and other characteristics of the data***

In forming an expectation, an accountant considers two broad factors related to the characteristics of the data included in the account: the level of detail on which the accountant can base the expectation and the reliability of the data.

In general, the more disaggregated the data, the more precise the expectation. For example, using monthly — rather than annual — data tends to improve the precision of the expectation. Preparing an expectation by an individual business unit (such as a retail location or a product division) is also more precise than one based on consolidated data. The accountant can further increase precision (and simultaneously achieve greater consistency) by disaggregating data based on its characteristics.

The more reliable the data source, the more precise the expectation. Factors that relate to data reliability that the accountant might consider in forming the expectation include the following:

- *External versus internal data and degree of independence.* Data from independent sources are typically more reliable (for example, data sourced from a third party versus from entity management).
- *Nonfinancial versus financial data.* The use of reliable nonfinancial data (such as a store's square footage or occupancy rates) improves the precision of the expectation.

When using analytical procedures to test for both overstatement and understatement, the accountant needs to ensure that the data used to build the expectation are reliable in both directions.

## ***Inherent precision of the expectation method used***

Expectations can be developed with a simple method, like using the prior-year sales balance (adjusted for expected changes) as the expectation for current-year sales, or with a complex method, like multiple regression analysis that incorporates both financial data (such as cost of goods sold) and nonfinancial data (such as store square footage) to predict retail sales. Determining which type of expectation method is appropriate in a given situation is a matter of professional judgment; however, the accountant would consider the inherent precision of the expectation method used when developing the expectation.

There are four types of expectation methods. The paragraphs that follow examine these methods and the circumstances in which each is most appropriate.

**Trend analysis.** This is the analysis of changes in an account balance over time. Simple trends typically compare the prior period's account balance to that of the current period. More sophisticated trend analyses encompass multiple periods.

Trend analysis is most appropriate when the account or relationship is predictable (for example, sales in a stable environment). When the entity has experienced significant operating or accounting changes, trend analysis is less effective (unless the accountant considers those changes when performing the trend analysis). How many periods the accountant uses in the trend analysis is a function of the stability of operations — the more stable the operations over time, the more predictable the relationships and the more appropriate the use of multiple periods.

Trend analysis at an aggregate level (for example, trend analysis of an entity's operating units on a consolidated basis) loses precision because a material misstatement is often small relative to the natural variation in an aggregate account balance. This suggests the need to perform trend analysis on a disaggregated level (for example, by segment, product, or location and monthly or quarterly rather than annually).

Accountants should be aware that using only the prior-period balance without considering whether it is the most appropriate expectation can lead to a bias toward accepting current data as fairly stated, even when they are misstated.

**Ratio analysis.** This is the comparison of relationships between financial statement accounts (between two periods or over time), the comparison of an account with nonfinancial data (such as revenue per order or sales per square foot), or the comparison of relationships between entities in an industry (for example, gross-profit comparisons). Ratio analysis entails comparing interrelations between accounts, nonfinancial information, or both. Another example of ratio analysis (sometimes called “common size analysis”) is to compare the ratio of shipping costs (or other selling expense) to sales from the prior period with the current-period ratio or to compare shipping costs to sales with the ratio of a comparable firm in the same industry. (See the appendix of this practice aid for a list of helpful ratios.)

Ratio analysis is most appropriate when the relationship between accounts is fairly predictable and stable (for example, the relationship between sales and accounts receivable). The efficacy of ratio analysis is due to the ability of comparisons between the balance sheet and income statement to reveal unusual fluctuations. However, in general, developing expectations for ratios is less precise and variances should be evaluated in terms of the amount of potential misstatement, not the change in the ratio.

Comparing ratios with industry averages (or with comparable firms in the same industry) is most useful when operating factors are comparable. However, because industry data is limited for nonpublic entities, many relevant industry averages available are general. Key operating factors (such as accounting policies, inflationary effect, location, seasonal effects, and history of the entity) would be accounted for when considering the comparability of the information. Unfortunately, because the accountant would not likely have the opportunity to understand the key operating factors of the entities included in the average, the comparability of the industry data would be difficult to determine. Consider gross profit percentage, for example. Although two entities in the same industry have similar volumes, other variables need to be considered; these include (but are not limited to) the raw material content of the product versus labor and overhead, the use of latest technology to improve productivity, and the extent to which product components are outsourced.

At an aggregate level (that is, consolidated operating units or across product lines), ratio analysis is less precise because, much as with trend analysis, a material misstatement is often small relative to the natural variation in ratios. This suggests the need to perform ratio analysis on a disaggregated level (such as by segment, product, or location).

**Reasonableness testing.** This is the analysis of account balances or changes in account balances within an accounting period that involves the development of an expectation based on financial data or nonfinancial data, or both. For example, an expectation for hotel revenues could be developed using the average occupancy rate, the average rate for all rooms, or rate by category or class of room. Another example is to use the number of employees hired and terminated, the timing of pay adjustments, and the effect of vacation and sick days to predict the change in payroll expense from the previous year to the current balance within a narrow dollar range.

In contrast to both trend and ratio analyses (which implicitly assume stable relationships), reasonableness tests use information to develop an explicit prediction of the account balance or relationship. Reasonableness tests rely on the accountant’s knowledge of the relationships, including knowledge of the factors that affect account balances. Using that knowledge, the accountant develops assumptions for each key factor (for example, industry and economic factors) to estimate the account balance. A reasonableness test for sales could be explicitly formed by considering the number of units sold, the unit price by product line, different pricing structures, and an understanding of industry trends during the period. This contrasts with an implicit trend expectation for sales based on prior-year sales. This latter expectation is appropriate only if no other factors affected sales during the current year (an unusual situation).

**Regression analysis.** More commonly used in financial statement audits, regression analysis is the use of statistical models to quantify the accountant's expectation in dollar terms, with measurable risk and precision. In many cases, the entity has developed analytical procedures or internal models, or both, that it uses to monitor and evaluate its business and performance. Accountants might find these internal analytics useful for developing their own analytical procedures and models. An accountant might, for example, develop an expectation for sales based on management's sales forecast, commission expense, and changes in advertising expenditures.

Regression analysis is like reasonableness testing in that there is an explicit prediction using the accountant's knowledge of the factors that affect account balances to develop a model of the account balance. The method is most effective when the data are disaggregated.

### ***Relationship between the methods used to develop an expectation and the precision of the expectation***

Of the four expectation methods, trend analysis and ratio analysis generally provide the least precision because neither accounts for changes in specific factors that affect the account (for example, product mix). The imprecision is magnified in the context of a changing economic environment in which the assumptions underlying prior-period numbers are no longer valid. For example, the accountant is predicting sales and new products have been introduced, or economic conditions affecting sales have changed significantly. Using prior-period sales as the implicit expectation for current sales does not provide a precise expectation because it omits relevant information about new products and changes in the economic environment. This is not to suggest that trend analysis and ratio analysis are always imprecise or that they cannot be made more precise; changing interest rates, inflation, or price changes (to name a few examples) can be factored into either trend analysis or ratio analysis to increase the analytical procedure's precision.

Regression analysis generally provides the highest level of precision because an accountant can form an explicit expectation by incorporating the relevant data into a model to predict current-period amounts. Regression analysis can consider all relevant operating data (sales volume by product, for instance), changes in operations (such as changes in advertising levels, in product lines, or in product mix), and changes in economic conditions. Furthermore, with regression analysis the accountant can measure the precision of the expectation.

The precision of reasonableness testing typically falls somewhere between that of trend or ratio analysis and regression analysis. However, reasonableness tests are generally precise because — as with regression analysis — they involve the formation of explicit expectations. That is, reasonableness tests can employ multiple sources of data, both financial and nonfinancial, across time. When using a reasonableness test, the accountant may begin with the idea of predicting the balance, whereas for trend or ratio analysis, the expectation formation process is implicit — as the ratio is compared with budget, industry, or other relevant benchmarks.

Some aspects of the foregoing examination of expectation methods can be summarized and grouped according to several factors, as follows:

- ***Explicit or implicit expectation.*** When using reasonableness testing or regression analysis, the accountant is explicitly forming an expectation. This approach helps to increase the precision of the expectation. In contrast, when using trend analysis and ratio analysis the accountant relies more on comparison and evaluation of, for example, budget, prior-period amounts, or industry figures that might be irrelevant due to changes in the entity's operations or in the economic environment affecting the entity or its specific industry.
- ***Number of predictors.*** Trend analysis is limited to a single predictor, that is, the prior period's (or periods') data for that account. Reasonableness testing and regression analysis further improve the precision of the expectation by allowing as many variables (financial and nonfinancial) as are relevant for forming the expectation.

- **Operating data.** Trend analysis, by relying on a single predictor, does not allow the use of potentially relevant operating data.
- **External data.** Reasonableness testing and regression analysis can directly use external data (such as general economic and industry data) in forming the expectation. The use of external data in ratio analysis is rare.
- **Statistical power.** Of the four expectation methods described herein, only regression analysis provides the benefits of statistical precision. The statistical model provides not only a best expectation given the data at hand but also provides quantitative measures of the fit of the model.

For the reasons noted in the preceding analysis, a common and effective method of developing expectations is to combine trend analysis and reasonableness tests by modifying prior-period data for operating or accounting changes. This method increases the number of predictors and therefore the precision of the expectation. It also allows for the use of both financial and nonfinancial information as predictors.

Take, for example, an analytical test of payroll expense. A simple trend analysis compares current-period payroll expense to that of the prior period. If, however, prior-period payroll expense was modified based on changes in headcount, average pay rate changes, and bonus pools, then the precision increases significantly. The use of disaggregation (by class of employees, say) can further increase precision.

## Phases 2 and 3: Identification and inquiry

The next two phases of the analytical procedure process consist of identification and inquiry. Identification begins by comparing the accountant's expected value with the recorded amount. Because the accountant developed an expectation that allowed for the acceptance of up to a particular amount of difference without further explanation, the accountant then compares any unexpected differences to the threshold. An accountant testing for possible misstatement of the book value of an account determines whether the difference is less than the accountant's threshold. If the difference is less than the acceptable threshold, the accountant accepts the book value with no further inquiry; if the difference exceeds the threshold, the accountant considers possible reasons for the difference. If the accountant is unaware of the reason for the difference, the accountant inquires of management regarding the difference.

The greater the precision of the expectation (that is, the closer the expectation is to the correct amount), the greater the likelihood that the difference between the expected and recorded amounts is due to misstatement rather than non-misstatement causes. The difference between an accountant's expectation and the recorded book value of an account could be due to any of or all the following three causes:

- a. The difference is due to misstatement.
- b. The difference is due to inherent factors that affect the account (such as the predictability or the subjectivity of the account).
- c. The difference is due to factors related to the reliability of data used to develop the expectation.

The greater the precision of the expectation, the more likely the difference between the accountant's expectation and the recorded value is due to misstatement (cause *a*). Conversely, the less precise the expectation, the more likely it is that a misstatement cannot be identified because the difference might be due to factors related to the precision of the expectation (causes *b* and *c*).

If the accountant believes that the difference is more likely due to factors related to the precision of the expectation, the accountant may consider whether a more precise expectation can be cost-effectively developed. If so, the accountant can reperform the analytical procedure based on the new expectation and calculate the new difference. If, on the other hand, in the accountant's professional judgment causes *b* and *c* are ruled out as explanations for the unexpected difference, the accountant may then evaluate the unexpected difference as a potential misstatement. The accountant should then inquire of management to evaluate the most likely causes and to identify a plausible explanation.

Plausible explanations usually relate to unusual transactions or events or to accounting or business changes. In evaluating whether an explanation is plausible, the accountant might consider pursuing the following types of information:

- Reports issued by management and board of directors of the entity, which might contain explanations of significant variances between budgeted and actual results
- Minutes of board of directors meetings, which also might contain such explanations
- Information regarding unusual events that occurred in prior periods, which might indicate types of unusual events that relate to current-period data

Paragraph .28 of AR-C section 90 requires that the accountant investigate differences by inquiring of management. However, the accountant may consider inquiring of others within the entity to corroborate management's responses, especially in areas in which the accountant is aware that the risk of material misstatement is higher. For example, consider a construction company that recognizes revenue over time. Having made inquiries and received management's responses to same, the accountant decides to corroborate those responses through discussion with project managers. These secondary inquiries provide the accountant with a greater understanding of the entity's operations; further, they might help the accountant identify corroborating or conflicting review evidence. If the responses to the secondary inquiries conflict with management's initial responses, the accountant may consider additional review procedures to obtain limited assurance.

## Phase 4: Evaluation

The accountant considers the difference between the expected value and the recorded amount in the final phase of the analytical procedure process. It is seldom practicable to identify factors that explain the exact amount of a difference identified for inquiry, but the accountant attempts to quantify that portion of the difference that can be plausibly explained. Any portion of the difference that cannot be plausibly explained might be of a sufficiently small amount, in the accountant's professional judgment, to enable a conclusion on the absence of material misstatement.

If a reasonable explanation cannot be obtained, the accountant should, in accordance with paragraph .65 of AR-C section 90, consider the impact of uncorrected misstatements identified during the review. In doing so, the accountant may consider (a) the size and nature of the misstatements, both in relation to particular classes of transactions, account balances, or disclosures, and in relation to the financial statements as a whole and the particular circumstances of their occurrence; and (b) the effect of uncorrected misstatements related to prior periods on the relevant classes of transactions, account balances, or disclosures and on the financial statements as a whole.

## Other procedures

Pursuant to paragraph .30 of AR-C section 90, the accountant should consider the reasonableness and consistency of management's responses in light of the results of other review procedures and the accountant's knowledge of the entity's business. If management's responses to the accountant's inquiries are unreasonable or are inconsistent with the results of other review procedures and the accountant's knowledge of the entity's business, then in accordance with paragraph .28b of AR-C section 90 the accountant should perform other review procedures. Such other review procedures may be similar to those performed in an audit of financial statements.

## Documentation

Pursuant to paragraph .137 of AR-C section 90, the accountant should prepare review documentation in a timely manner that is sufficient to enable an experienced accountant, having no previous connection to the review, to understand the following:

- a. The nature, timing, and extent of the review procedures performed to comply with SSARs
- b. The review evidence obtained from the review procedures performed and the accountant's conclusions formed based on that review evidence
- c. Significant matters arising during the review, the accountant's conclusions reached thereon, and significant professional judgments made in reaching those conclusions

With respect to the performance of analytical procedures, it is expected that the accountant will, at a minimum, document the following:

- a. The expectation referred to in paragraph .27c of AR-C section 90 and the factors considered in its development when that expectation and those factors are not otherwise readily determinable from the review documentation.
- b. Results of the comparison referred to in paragraph .26c of AR-C section 90 of the recorded amounts, or ratios developed from recorded amounts, with the expectations.
- c. Any inquiries of management and other review procedures performed in accordance with paragraph .28 of AR-C section 90 relating to the investigation of fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount and the results of such procedures. The documentation of inquiries of management are expected to include management's responses to the accountant's inquiries and the accountant's determination about whether management's responses appear reasonable.

## Appendix: Financial ratios

This table contains financial ratios that might be helpful to an accountant performing some of the analytical procedures discussed in this practice aid. These financial ratios include liquidity, activity, and efficiency ratios.

Financial ratio	Formula	Explanation
Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	Measures ability to meet short-term obligations
Quick ratio (also called acid-test ratio)	$\frac{\text{Current assets less inventory}}{\text{Current liabilities}}$	A more conservative measure of an entity's ability to meet short-term obligations
Operating cash flows to current liabilities	$\frac{\text{Cash provided by operations}}{\text{Average current liabilities}}$	Liquidity calculation
Days sales in accounts receivable	$\frac{\text{Net accounts receivable}}{\text{Net sales}/(\text{days in the year, use 360 or 365})}$	Measures the number of days, on average, to collect an accounts receivable during the year
Allowance for bad credit as a percentage of accounts receivable	$\frac{\text{Allowance for bad debt}}{\text{Accounts receivable}}$	Calculation is compared to prior periods and comparable entities
Bad debt expense as a percentage of net sales	$\frac{\text{Bad debt expense}}{\text{Net sales}}$	Calculation is compared to prior periods and comparable entities
Inventory turnover	$\frac{\text{Cost of sales}}{\text{Inventory}}$	Activity ratio (indicates operational efficiency)
Fixed-asset turnover	$\frac{\text{Net sales}}{\text{Average fixed assets}}$	Activity ratio

Financial ratio	Formula	Explanation
Receivable turnover	$\frac{\text{Net credit sales}}{\text{Average receivables}}$	Activity ratio
Net sales to inventory	$\frac{\text{Net sales}}{\text{Inventory}}$	Activity ratio
Days in inventory	$\frac{\text{Inventory} \times (\text{days in a cycle})}{\text{Cost of sales}}$	Calculates how many days of inventory are available
Accounts payable to net sales	$\frac{\text{Accounts payable} \times (\text{days in a cycle})}{\text{Net sales} \times (\text{days in a year})}$	Compares accounts payable balance to net sales
Return on total assets	$\frac{\text{Earnings before income tax (EBIT)}}{\text{Total net assets}}$	Identifies effective use of assets to generate earnings
Return on net worth	$\frac{\text{Net income} \times (\text{days in a year})}{\text{Net worth} \times (\text{days in a cycle})}$	Profitability measure
Return on net sales	$\frac{\text{Net income}}{\text{Net sales}}$	Profit margin
Net sales to accounts receivable	$\frac{\text{Net sales} \times (\text{days in a year})}{\text{Net accounts receivable} \times (\text{days in a cycle})}$	Calculates how many times accounts receivable will turn over per year of the operating cycle
Net sales to net fixed assets	$\frac{\text{Net sales} \times (\text{days in a year})}{\text{Fixed assets} \times (\text{days in a cycle})}$	Calculates efficiency of capital investment
EBIT to net worth	$\frac{\text{EBIT} \times (\text{days in a year})}{\text{Net worth} \times (\text{days in a cycle})}$	Ratio of earnings to net worth per year

Financial ratio	Formula	Explanation
Gross profit percentage	$\frac{\text{Net sales} - \text{cost of sales}}{\text{Net sales}}$	Profitability calculation
Operating expenses as a percentage of net sales	$\frac{\text{Operating expenses}}{\text{Net sales}}$	Efficiency calculation

